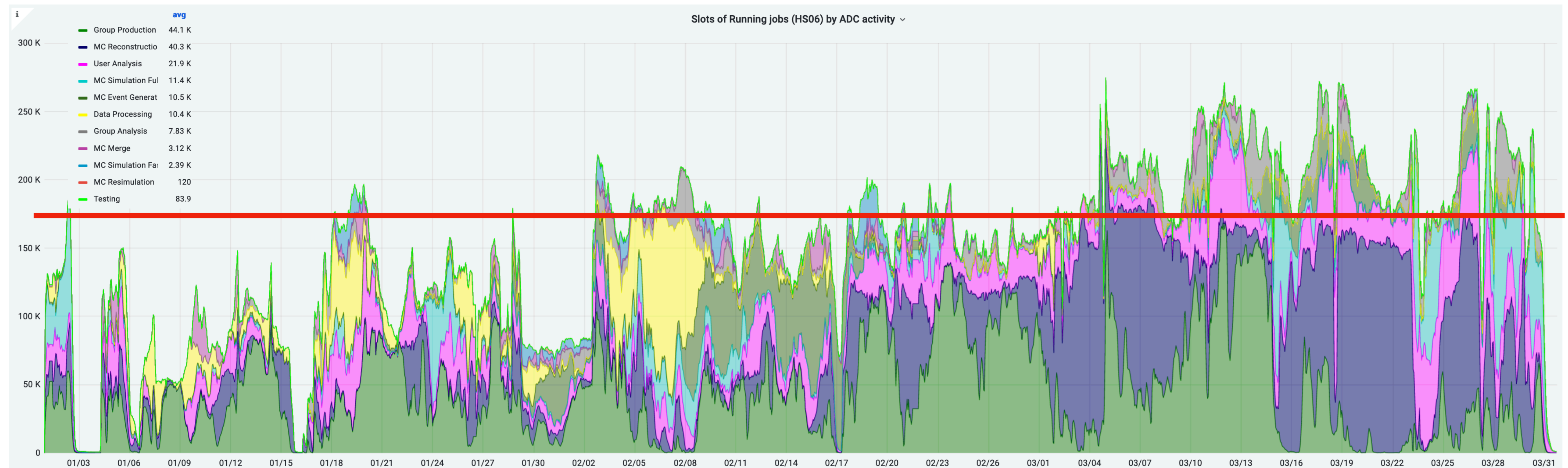# Resources Review Meeting: 2022Q1 ATLAS RAL

James Walder

25 05 2022

# Highlights

- Reporting period:

  - Q1 2022:  1 Jan  - 31 March 2022

- Migration of TAPE storage from Castor to CTA/Antares

- All ATLAS disk traffic for external transfers (TPC) (incl. multihop Tape) moved to WebDav transfers

  - Some instabilities observed; additional hardware and updated software / configuration appears to have improved situation moving into Q2

    - Further development work now anticipated to improve throughput capabilities.
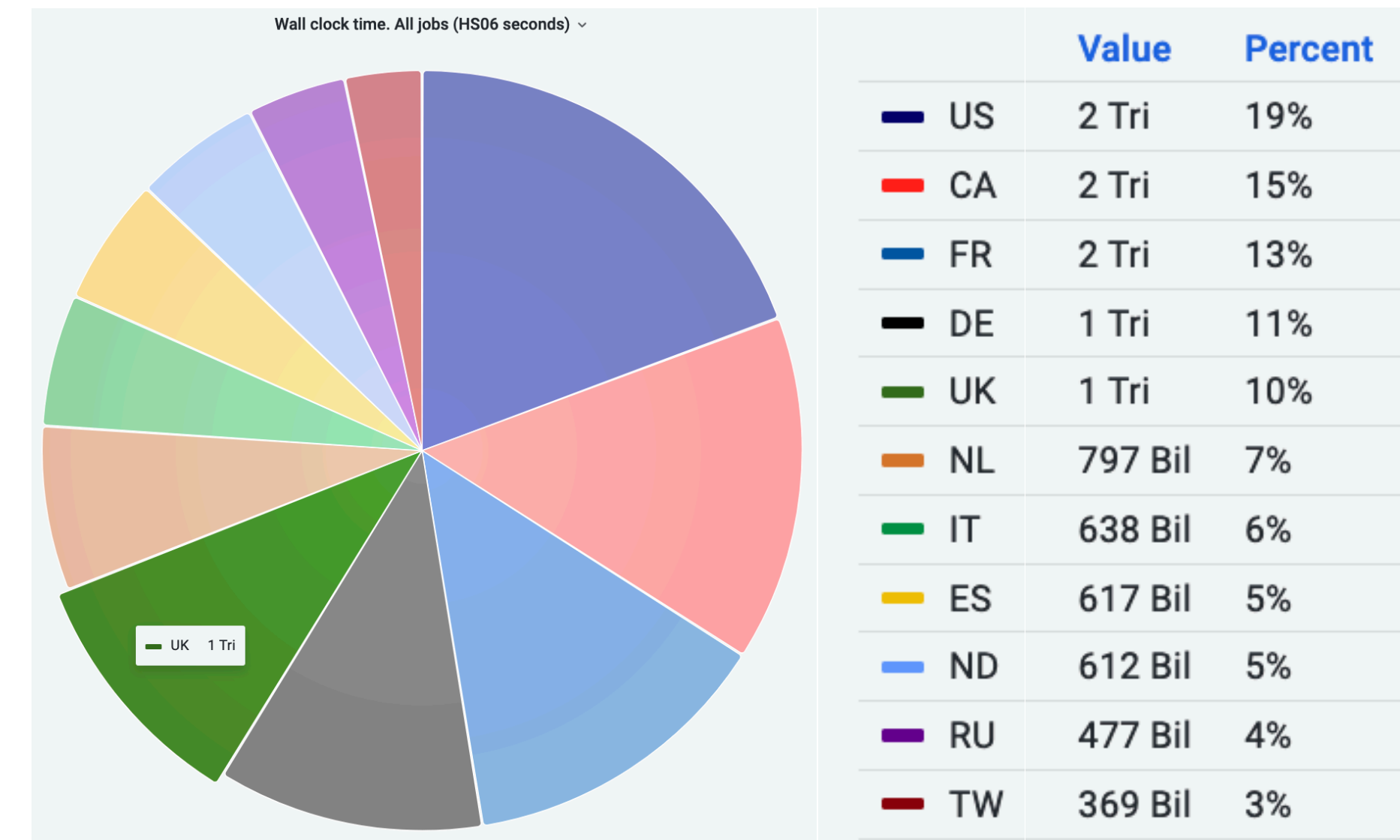
# CPU resource

- 2021–22 pledge: 173.16 kHS06

  - Averaged reported CPU consumption 152k HS06 for Q1 period;

    - Some small uncertainly in the value due to variations of hardware running (with different Corepower values) over the period

  - Improvement towards end of period (increase of Multicore job demand), availability of full cpu capacity.

  - For Q2 moved to a Pull model of Jobs allocation, rather than push model used previously - allows for better late binding of job to the pilot (Q2 generally running at or above pledge so far).
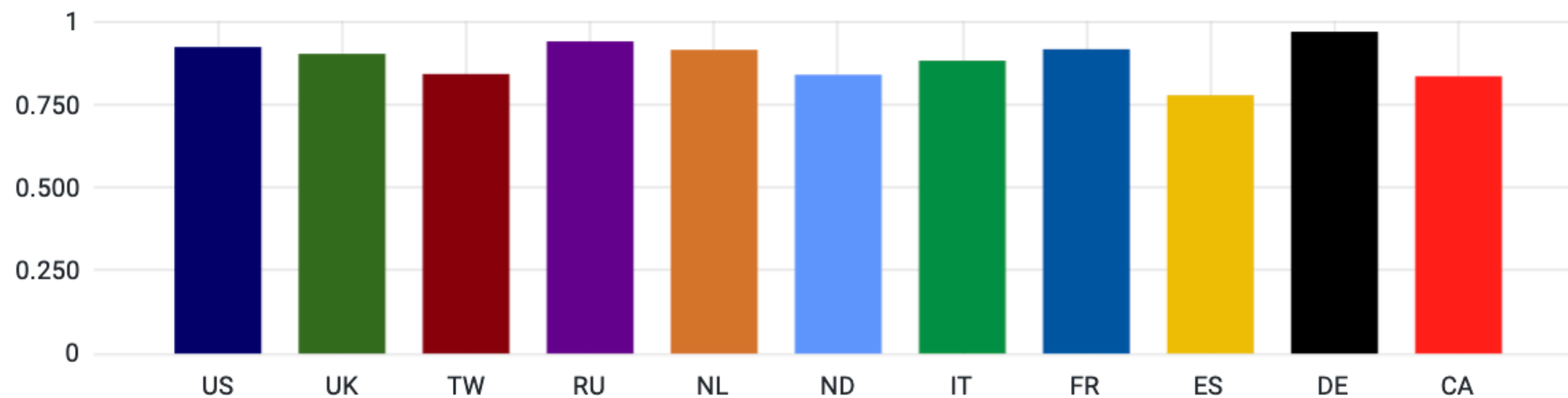
# Tier-1 Comparison: CPU

- UK Tier-1 provided 10% (11%) of delivered walltime to ATLAS in the last quarter (of Tier-1 sites).

- CPU efficiency is broadly similar across the Tier-1s; (job mix variations can affect direct comparisons)

  - UK Tier-1 reports 90% CPU efficiency for Q1 period
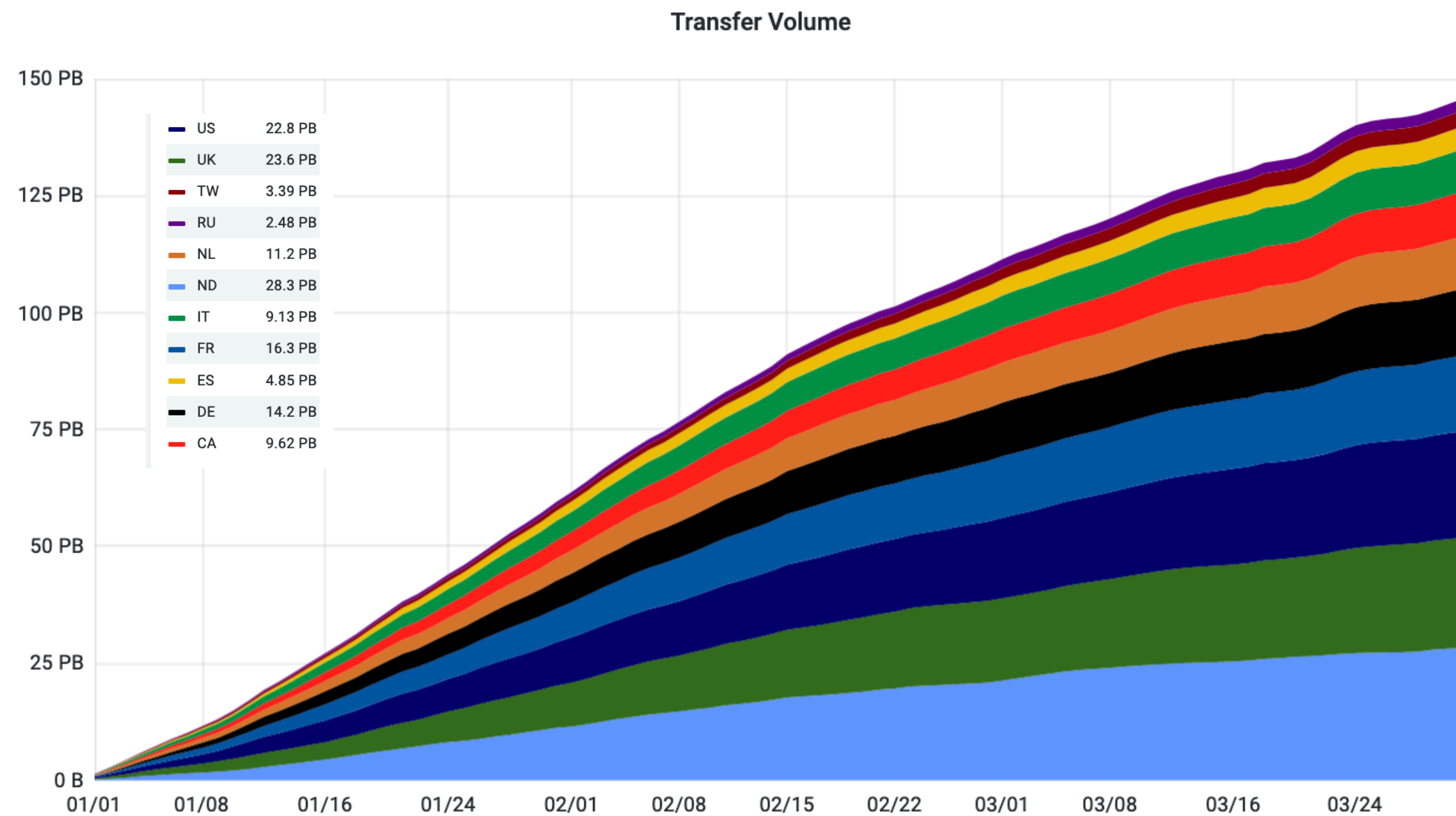
**Tier-1 CPU Walltime for period Jan '22 – Mar '22**



Wall clock time. All jobs (HS06 seconds)

| | | Value | Percent |
|---|---|---|---|
| — | US | 2 Tri | 19% |
| — | CA | 2 Tri | 15% |
| — | FR | 2 Tri | 13% |
| — | DE | 1 Tri | 11% |
| — | UK | 1 Tri | 10% |
| — | NL | 797 Bil | 7% |
| — | IT | 638 Bil | 6% |
| — | ES | 617 Bil | 5% |
| — | ND | 612 Bil | 5% |
| — | RU | 477 Bil | 4% |
| — | TW | 369 Bil | 3% |

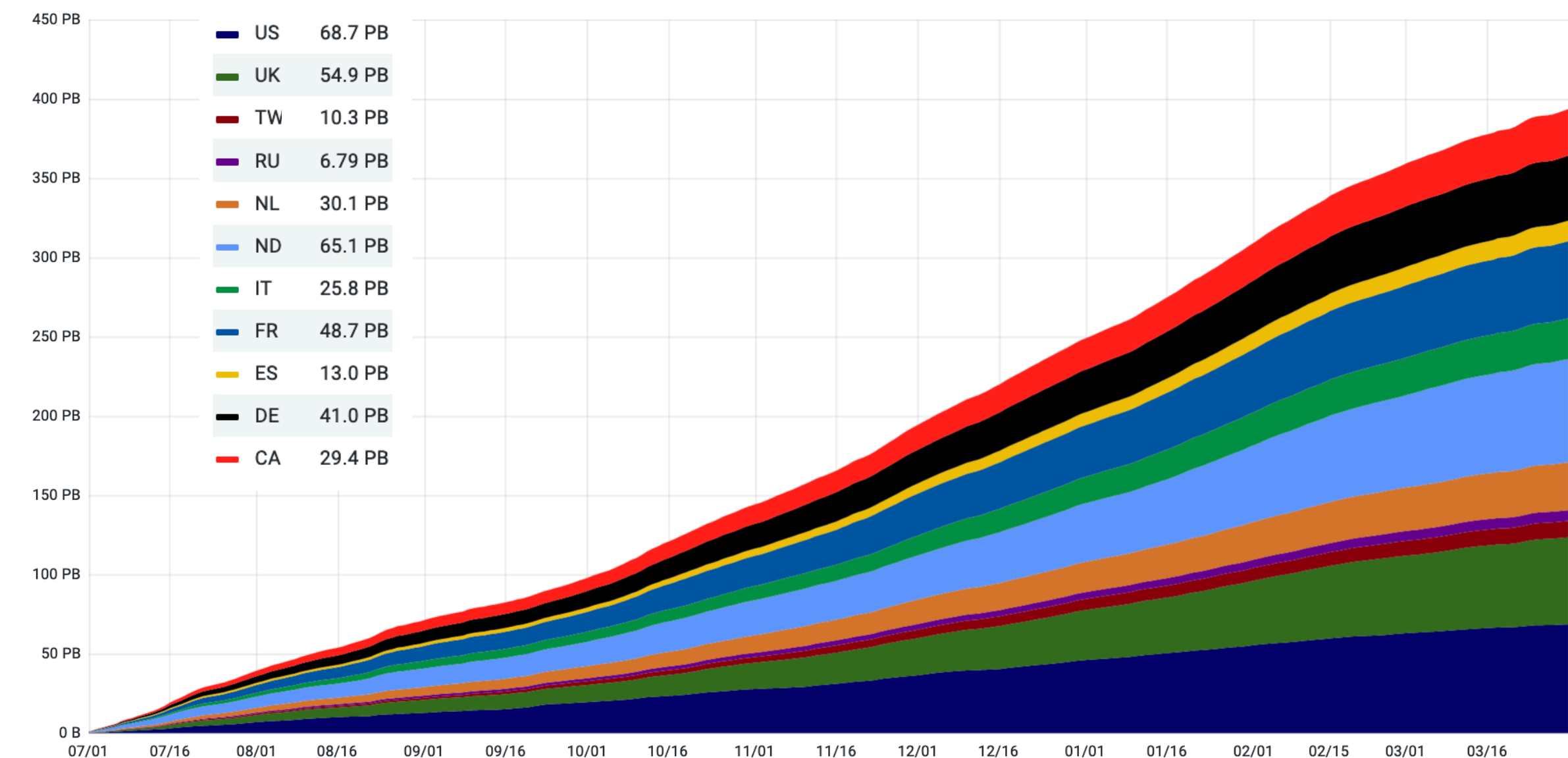

Average CPU Efficiency Good jobs

4

# Tier-1 Comparisons: Data

- In Q1, over 23PB of data transferred into the UK Tier-1 Disk.

- In last 6 months almost 55PB transferred in to UK Tier-1 Disk

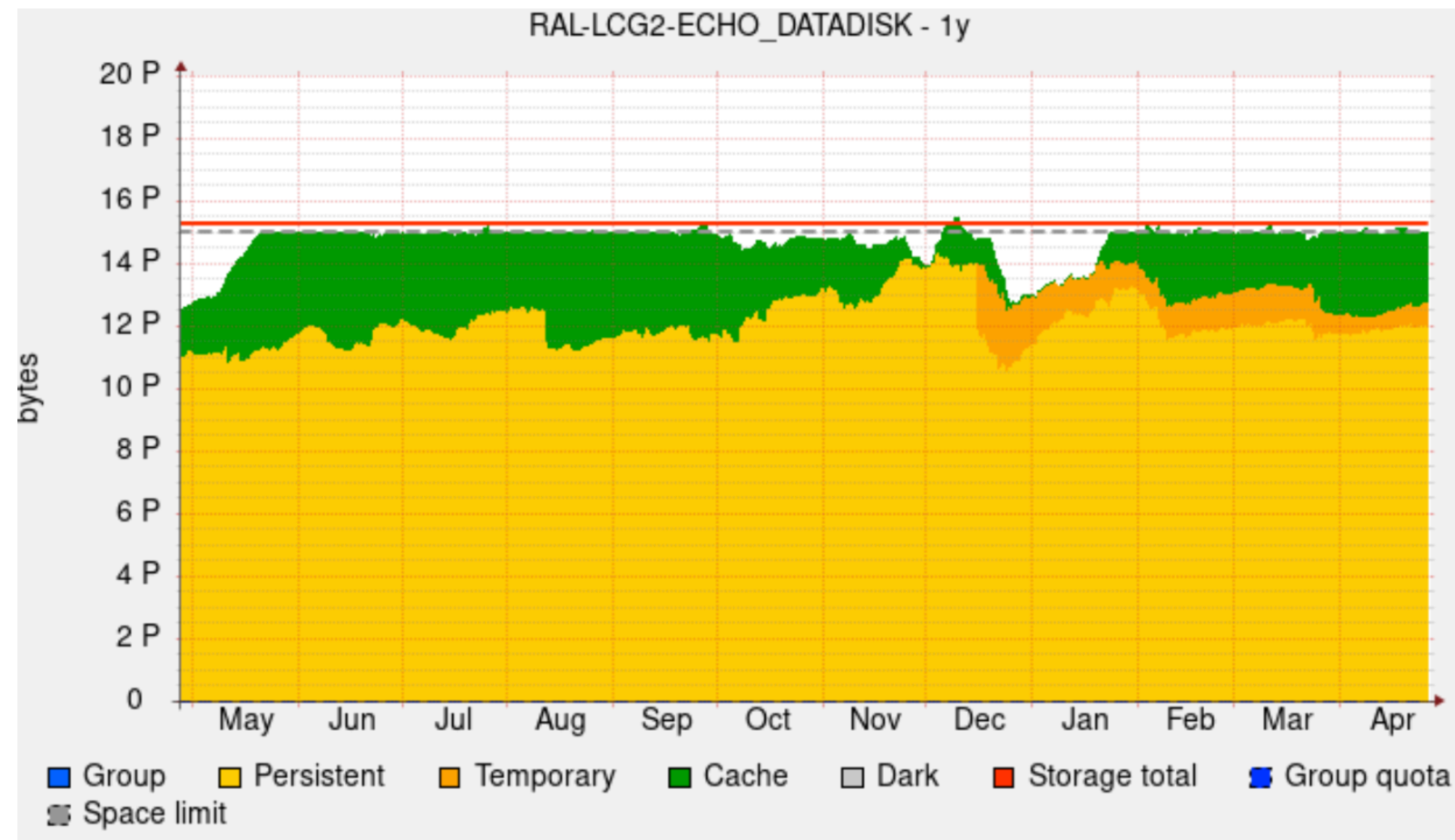**22Q1 cumulative data transfer into Tier-1 facilities**



**6Month cumulative data transfer into Tier-1 facilities**

# Tier-1 Disk Usage

- Disk, as always, remains a constrained resource.

  - 15.5PB quota (almost) always fully utilised

- In December, RAL requested to reduce capacity (i.e. by reducing cached data) to assist in rebalancing data to add new hardware for ECHO.

- New "temporary" data type now included into these plots to identify data that is eligible for removal.

- Deletion campaign started in May.

- Awaiting 2022 Disk pledge to be deployed.



RAL-LCG2-ECHO_DATADISK - 1y

Legend: Group | Persistent | Temporary | Cache | Dark | Storage total | Group quota | Space limit

# Tier-1 Tape usage

- Use of Tape as archival storage and as a part of production model (via data carousel) continues:

- Currently ATLAS is using:

  - 15.2PB of Data

  - 24.0PB of MC

- 2022 pledge brought forward in Decemeber at request of ATLAS

- Migration from CASTOR to CTA (Antares) a large success

- Deletion campaign on Tape also starting in 22Q2.